

NEMIROVSKIY, A. S.

Methodical error of discrete integration. Trudy inst. Kon.
stand. mer i izm. prib. no. 57:68-77 '62.

(MIRA 15:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut Komiteta
standartov, mer i ismeritel'nykh priborov pri Sovete Ministrov
SSSR.

(Integrators)

S/115/63/000/004/001/011
E160/E135

AUTHORS: Nosirevskiy A.S. and Volkenskiy V.A.

TITLE: Approximation error in the discrete measurements of analog quantities

PERIODICAL: Izmeritel'naya tekhnika, no.4, 1963, 1-6

TEXT: In analog-digital conversion followed by digital-analog reconversion, the difference between the final analog value and the input (initial) analog value, the measured quantity, constitutes a methodic quantification error, and is a function of time. The article discusses two methods of interpolation in current use, stepwise and linear (trapezoidal), and signal restoration by the passage of impulses through a lowpass filter, with a view to determining the quantification error when measuring a realization of a random stationary process. The authors find that linear interpolation is superior to stepwise, and that the method of signal restoration by transmission of impulses through a lowpass filter requires too high a repetition frequency. There is 1 figure.

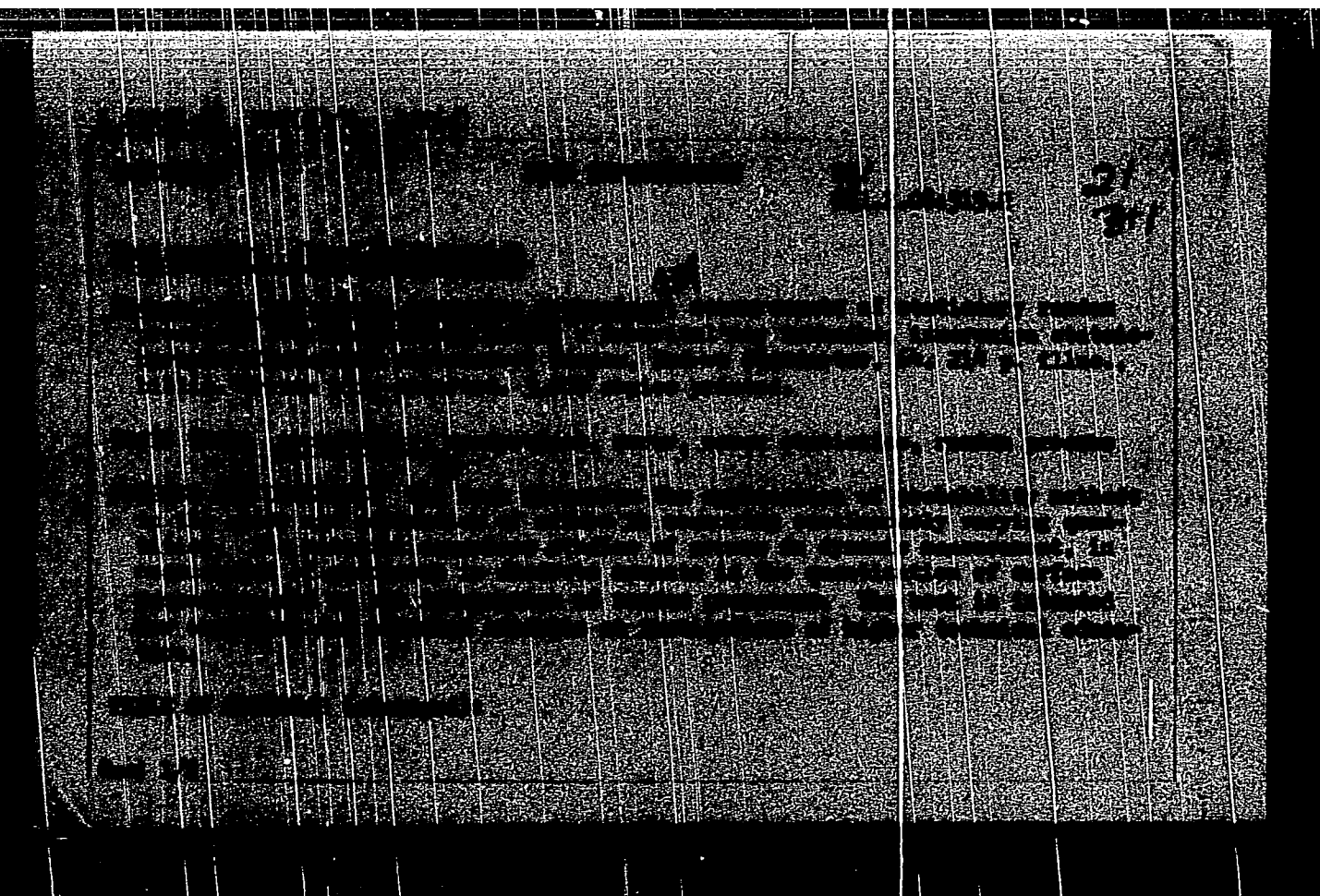
Card 1/1

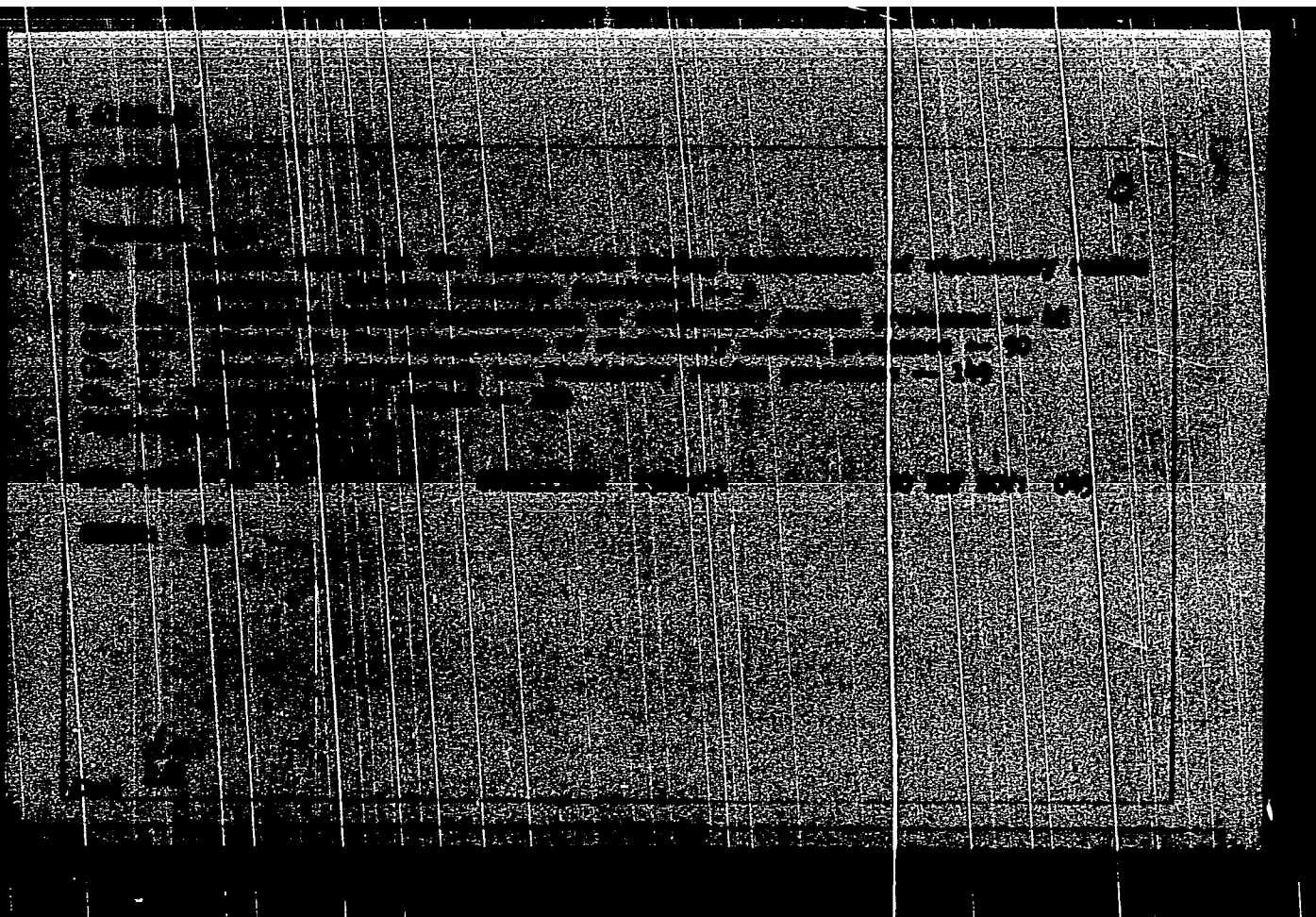
NEMIROVSKIY, A.S.; KESSEL'MAN, S.M.

Nomograms for the determination of the error of differential
manometers-flowmeters. Izv. tekhn. no.9:49-52 3 '63.
(MIRA 17:1)

VOLKONSKIY, V.A. (Moskva); NEMIROVSKIY, A.S. (Moskva)

Methodical error of a multiplier-divider with discrete action.
Avtom. i telem. 24 no.10:1373-1379 0 '63. (MIRA 16:11)





L 3984-66

ACCESSION NR: AP5022356

UR/0115/65/010/007/0001/0006

681.2.088.001.5

AUTHOR: Nemirovskiy, A. S.; Ivankov, S. A.

TITLE: New approximation polynomials for analyzing the results of measurements

SOURCE: Izmeritel'naya tekhnika, no. 7, 1965, 1-6

TOPIC TAGS: approximation method, mathematic analysis

ABSTRACT: Simple methods are proposed for deriving polynomials to approximate the physical relationships of empirically derived functions. These methods reduce the number of computational operations required for derivation of approximate polynomials in comparison with the method of least squares. However, the new methods entail somewhat of a loss in information (reduction in accuracy) or an increase in the number of experiments. It is proved that little accuracy is lost in the case of polynomials of the second and third degree if curves are passed through subintervals in the function being approximated and correction is made by adding a constant or a linear term. It is shown in the first part of the paper that a polynomial of any degree k requires correction by a polynomial of degree $k - 2$. Even if the corrective

Card 1/2

L 3984-66

ACCESSION NR: AP5022356

polynomial is derived by the method of least squares, the total number of operations is reduced by using the proposed method. A method is also proposed which may be used in cases where limited accuracy is required. The approximating curve is laid out by any simple rational method (even "by eye") and the deviation of this curve from the experimental points is then approximated by one of the polynomials proposed in this paper. It is frequently possible to approximate a function by a linear polynomial, which is easily found by the method of least squares. Orig. art. has: 45 formulas.

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: MA

NO REF SOV: 001

OTHER: 000

PC

Card 2/2

NEMIROVSKIY, A.S.; NIKONOV, V.V.

Statistical method for establishing intervals between tests. Izv.
tekh. no.9:49-51 3 '65. (MIRA 18:10)

ORLOVSKIY, A.V., professor; CHIZHENKO, I.M., dotsent; ~~MEMIROVSKIY, A.S.~~,
inzhener.

Use of mercury-arc-rectifier installations to generate wattless
power. Prom.energ. 11 no.4:16-21 Ap '56. (MIRA 9:7)

1.Kiyevskiy politekhnicheskiy institut.
(Electric current rectifiers) (Electric substations)

AUTHOR : Nemirovskiy, A.S. and Sindler, Yu.B.

TITLE : A-U Sci Conf dedicated to "Radio Day", Moscow 20-25 May 1957.
"Calculation of the Influence of Fading in Designing Radio Relay
Communication Lines,"

PERIODICAL: Radiotekhnika i Elektronika, Vol. 2, No. 9, pp. 1221-1224,
1957. (USSR)

NEMIROVSKIY, A. S.

AUTHORS: Sindler, Yu. B., Nemirovskiy, A. S.

108-11-3/10

TITLE: On the Fading-Correlation in Adjoining Sections of the Radio-Relay-Lines (O korrelyatsii zamiraniy na sosednikh uchastkakh radioreleynykh liniy svyazi).

PERIODICAL: Radiotekhnika, 1957, Vol. 12, Nr 11, pp. 21-28 (USSR)

ABSTRACT: In this place those factors are analysed which influence the probability of a deficiency of the radio-relay-lines effected by the fading. The intensity of the background noise at the line output is looked upon as chance quantity and for it the rule of the probability-distribution is assessed. In the first place the case where the threshold of the distinctness of speech is surpassed, is examined. This threshold complies with the case where the signal strength surpasses the intensity of the background noise by approximately 10 db. Two cases of deficiency of a line can be distinguished:

- a - breakdown of at least one section,
- b- all section are intact, but the background noise caught

Card 1/3

On the Fading-Correlation in Adjoining Sections of the Radio- 108-11-3/10
Relay-Lines.

by the line surpasses the threshold of the distinctness of speech. It is demonstrated that, as a rule, in too long lines at the fading the background noise produced by one section surpasses substantially that noise assembled in other tracts. This means that, the stronger the frequency-modulation-improvement-threshold is pronounced, for as much longer lines this thesis can be applied. It is shown that in this case the static analysis of the line breakdown results from the static analysis of breakdowns of line sections. If the sections are more or less identical, the diagram of a simple circuit by Markov can be used. As in practice the circuit is heterogenous, it is useful to carry out the outfit for some section-pairs. Such an outfit was carried out for the radio-relay-line Moscow - Gor'kiy in 1954 and 1955. In this place the results of these investigations are reported. It is shown that the use of the diagram of the simple circuit by Markov gives the first result of a rough approach under consideration of the fading correlation in the adjoining sections. The real error, nevertheless, which occurs at the use of the simple circuit is less than the error which results from the computation. There are 3

Card 2/3

On the Fading-Correlation in Adjoining Sections of the
Radio-Relay-Lines.

108-11-3/10

figures, 2 tables, and 5 references, 5 of which are Slavic.

SUBMITTED: April 22, 1957.

AVAILABLE: Library of Congress

Card 3/3

CHIZHIENKO, I.M.; NEMIROVSKIY, A.Sh.

First industrial mercury-arc current converter installation with
a special switch unit and the results of its test. Izv. KPI 22:
259-278 '57. (MIRA 11:3)

(Electric current converters)

CHIZHENKO, I.M.; NEMIROVSKIY, A.Sh.; GLUKHOV, D.Ya.; IVANOV, Yu.M.

The first compensated mercury rectifying converter of the aluminum
plant and results of its testing. Izv. KPI 26:139-169 '57.
(MIRA 11:6)

1. Kafedra teoreticheskikh osnov elektrotehniki Kiyevskogo politekh-
nicheskogo instituta.

(Mercury-arc rectifiers--testing)

NEMIROVSKIY, A. SH.

64-1-11/12

AUTHORS: Chizhenko, I. M. , Nemirovskiy, A. Sh.

TITLE: New Compensation Mercury Rectifier **Apparatus** for Chemical Works (Novyy kompensatsionnyy rtutno-vypriyatel'nyy agregat dlya khimicheskikh predpriyatiy)

PERIODICAL: Khimicheskaya Promyshlennost', 1958, Nr 1, pp. 49-51(USSR)

ABSTRACT: A new transformer plant with parallel connection and a transformer with a leading of angle phase was theoretically worked out and practically investigated in the Polytechnical Institute, Kiyev by order of the Gasenergonadzor MES SSSR. A schematic description of the **aggregate** mentioned in the title is given. The new plant has the following advantages: the compensation of the reaction capacity is effected in the consumption; the regulation of the transformed voltage is carried out without deterioration of the coefficient of shear; the distribution of the reactive capacity is carried out proportionally to the value of the consumed active capacity, therefore the overcompensation of the reactive capacity in the load change is eliminated; the additional costs for the

Cord 1/2

64-1-11/12

- New Compensation-Mercury Rectifier **Apparatus** for Chemical Works

new arrangement of the plant are comparatively low. Experimental rectifiers of the same type are in operation in the branch station of the Post-Volynskiy YuZZhD and the aluminum works, Dnepropetrovsk. There are 3 figures.

AVAILABLE: Library of Congress

1. Mercury rectifiers-Applications
2. Electrical equipment-USSR

Card 2/2

SOV/94-58-8-1/22

AUTHOR: Chizhenko, I. M., Candidate of Technical Science and
Nemirowskiy, A. Sh., Engineer

TITLE: ▲ Multi-phase Compensated Mercury Arc Rectifier Set
(Mnogofaznyy kompensatsionnyy rtutno-vypriyatel'nyy
agregat)

PERIODICAL: Promyshlennaya Energetika, 1958, Nr 8, pp 1-6 (USSR)

ABSTRACT: The advantages of several possible rectifier circuits for very high power installations are compared. When there are several large sets the rectifiers are grouped in pairs, each pair having two supply transformers. The advantages of considering each pair as a single set are pointed out. A typical circuit is given in Fig.1. A set of this kind may consist of four or even eight simple three-phase rectifiers connected in parallel. It is important to correct the power factor of large rectifiers and one way of doing this is to use a special compensating device consisting of a three-phase group of capacitors and a three-phase equalising coil so ensuring current commutation with a leading control angle. The switching device can be connected to neutral of the supply

Card 1/5 transformers as in Fig.2 or to the rectifier cathodes as in

SOV/94-58-8-1/22

▲ Multi-phase Compensated Mercury Arc Rectifier Set

Fig.3. The operation of a complex multi-tube rectifier is described in detail in Information Letter No.3/37 of Gosenergonadzor of the Ministry of Power Stations entitled 'Rectifiers with leading phase-angle'. In each of the two rectifiers the currents reaching the capacitors from the individual elementary rectifiers are added together to produce double frequency current of the same value and wave shape as the capacitor currents of the individual elementary rectifiers. Because the frequency is doubled the size of capacitor necessary is reduced by half. Parallel connection of four elementary rectifiers gives fourfold frequency in the capacitors and the utilisation of the capacitors can be 16 times as effective as in a simple three-phase rectifier. The capacitors ensure that switching of the current in the phases of the supply transformer occurs at leading control angle, the capacitors also create their own voltage component and thus alter the voltage wave shape on other circuit components. The voltage of the blocking rectifier is particularly distorted as will be seen from Fig.4 which gives the wave shape when the rectifier works with a

Card 2/5

SOV/94-53-8-1/22

A Multi-phase Compensated Mercury Arc Rectifier Set

control angle of $\pi/6$ under ideal conditions in which current switching and deionisation of the arc gap in the ionic rectifier occur instantaneously. It will be seen that the peak inverse voltage of the rectifier is much higher than on normal rectifiers but this occurs at an instant in the cycle when the rectifier stability is already established. However, the critical control angle with the circuit of Fig.3 is only half that for rectifiers with two elementary rectifiers. Fig.5 gives oscillograms of current and voltage on the capacitors in rectifiers with one, two and four elementary rectifiers with one and the same load current on the elementary rectifiers. Fig.6 gives the construction of voltage curves for the supply transformer with switching capacitors and the inverse rectifier voltage at different values of power factor when the a.c. reactance is 0.1. The method of construction of these curves is explained. Oscillograms were taken on a rectifier set connected as shown in Fig.3 and are given in Fig.7 and 8. For comparison currents and voltages in various parts Card 3/5 of an ordinary multi-phase rectifier are given in Fig.9.

SOV/94-58-8-1/22

A Multi-phase Compensated Mercury Arc Rectifier Set

It is concluded that the proposed converter circuit with star and delta in the primary and two direct and two reverse stars in the secondary with equalising coils and commutating capacitors ensures rectification of current with leading phase angle between current and voltage in the primary winding of the supply transformer, this means that some reactive power is generated. The reactive power compensated and generated by the circuit as a whole is about ten times that of the capacitors used in the circuit. This occurs because the capacitors only act as a compensating link and the reactive power is generated by exchange of energy between the source of alternating e.m.f., the higher harmonic electromagnetic field and the rectified current circuit. The capacitors operate at four times supply frequency, and their power is about 10% of that of the set. The circuit should only be used when the control angles are small and the commutating

Card 4/5

SOV/94-58-8-1/22

A Multi-phase Compensated Mercury Arc Rectifier Set

device is mainly required to compensate reactive power.
There are 9 figures and 4 references, all of which are
Soviet.

Card 5/5

82181

S/106/60/000/08/02/003

6.4400

AUTHOR: Nemirovskiy, A.S.

TITLE: Reception With Summation of Signals Spaced by the Angle of Beam
Arrival in Long-Distance Tropospheric Propagation of Ultrashort
Waves⁶

PERIODICAL: Elektrosvyaz', 1960, No. 8, pp. 19 - 25

TEXT: The author discusses a new method of diversity reception on communication lines based on the long-distance tropospheric propagation of ultrashort waves. This method consists in the angle diversity of the arriving beam in the vertical and horizontal planes. Several methods of signal summation, or combinations of them, can be used: 1) automatic selection of the strongest signal out of N signals; 2) linear summation of N signals; and 3) nonlinear summation of N signals (square-law or exponential summation), adding N signals in some proportion, which is to be determined by the signal intensity. For achieving N-fold reception, N receivers are required which can be fed from one antenna with a multilobe directivity pattern. At the transmitter site, also one antenna with N lobes in the radiation pattern and N radiators can be used. Each radiator can be fed from one transmitter, or all radiators are fed from

Card 1/2

82181

S/106/60/000/08/02/003

Reception With Summation of Signals Spaced by the Angle of Beam Arrival in Long-Distance Tropospheric Propagation of Ultrashort Waves

one common transmitter through a power divider. After discussing the determination of the correlation coefficient between two signals with angle diversity, the effect of signal correlation on the advantage to be obtained with diversity reception, and the calculation of the reliability of a communication line with angle diversity reception, the author arrives at the following conclusions:

- 1) The angle diversity reception is effective in case of a sufficiently high reliability of the nondiversity reception. Its effectiveness terminates with a decrease in the reliability of the latter.
- 2) The angle diversity is effective only for pencil-beam antennas.
- 3) The N-fold angle diversity reception with one transmitter for a low communication reliability will provide an advantage compared to ordinary reception.
- 4) There are optimum values of the multiplicity of angle diversity reception. The communication reliability decreases with a further increase of the multiplicity.
- 5) The angle diversity in the horizontal plane yields higher indices than the diversity in the vertical plane. The author expresses high gratitude to V.S. Borodich and I.A. Gusevatskiy for their suggestions, which he used. There are 11 diagrams and 8 references: 3 Soviet, 4 American and 1 British.

SUBMITTED: December 30, 1959

Card 2/2

CHIZHENKO, I.M.; NEMIROVSKIY, A.Sh.; SHCHERBAK, S.K.; PUSHKAREV, A.R.;
SHAPIRSHTAYN, Ya.A.

First compensating mercury rectifier device and its operation.
Prom. energ. 15 no.8:20-27 Ag '60. (MIRA 15:1)
(Electric current rectifiers)
(Electric substations)

BULATOV, S.B.; KIVILIS, S.S.; NEMIROVSKIY, A.S.

Measurement of a pulsating gas flow. Izv. tekhn. no. 11:57-
58 N '61. (MIRA 14:11)

(Flowmeters)

24855S/105/61/000/005/003/006
A055/A133

9,9300

AUTHOR: Nemirovskiy, A. S.

TITLE: Transmission-bandwidth with single and scattered signal reception in the case of long-distance tropospheric propagation of VHF waves

PERIODICAL: Elektrosvyaz', no. 5, 1961, 18 - 25

TEXT: In the case of long-distance tropospheric propagation of VHF waves, a regular signal, caused, according to all appearance, by the diffraction of radio-waves, reaches the input of the receiver together with a large number of components scattered by the non-homogeneities of the troposphere permittivity. The ratio of the diffraction component to the RMS value of the component due to scattering depends on the parameters of the path and frequency of the signal and varies within rather wide limits. In the first and main part of his article the author examines the effect of the diffraction component on the transmission band when the above-mentioned ratio exceeds 2. If the transmitted signal is $U = U_0 \cos \omega_0 t$, the signal reaching the reception point will, in the presence of the regular component, have the form of a quasi-harmonic oscillation, the amplitude of which obeys the generalized Rayleigh distribution

Card 1/ 8

24855

S/106/61/000/005/003/006

Transmission-bandwidth with single and scattered ...

A055/A133

$$p(u) = \frac{u}{\sigma^2} e^{-\frac{u^2 + u_0^2}{2\sigma^2}} I_0\left(\frac{uu_0}{\sigma^2}\right), \quad (1)$$

where $2\sigma^2$ is the RMS amplitude of the fortuitous component, and U_0 the regular component of the incoming signal [$I_0(Z)$ being the Bessel function]. When a wide frequency-band is transmitted, the amplitude spectrum of the transmitted signal will be distorted, because the phase relations are different for different frequencies. These distortions will change continuously in time, which means that the troposphere has, as it were, a finite transmission-band, this band varying continuously. The irregularity of the frequency characteristic is usually evaluated by the ratio of the signal amplitude at the center of the band to the amplitude at its edges. In the case of tropospheric radio-relay links, it is necessary to find the law of the distribution of the probability of the quotient of two fortuitous magnitudes characterizing the signal amplitudes at the center and at the edge of the frequency band for a given correlation between them. This problem, as applied to the case without the regular component, was solved by I. A. Gusev [Ref. 5: Shirina polsy i moshchnost' perekhodnykh pomekh pri radiosvyazi. rasseyaniyem v troposfere (Band Width and Transient Noise Power in Radiocommunication by Scattering in the Troposphere), Elektrosvyaz', 1959, no. 4]. When this regular component is present, the problem

Card 2/8

24855

S/106/61/000/005/003/006

A055/A133

Transmission-bandwidth with single and scattered ...

is more complicated. It is indeed practically impossible to find a general law for the distribution of a quotient of two correlated fortuitous magnitudes ξ and ζ if each of them has a generalized Rayleigh distribution. It is possible to show, however, [Ref. 4: B. P. Levin. Teoriya sluchaynykh protsessov i yeye primeneniye v radiotekhnike (Theory of fortuitous processes and its application to radio engineering) Sovetskoye Radio, 1957] that, already when $\left[\frac{s^2}{2\sigma^2} = \frac{u_0^2}{2\sigma^2} \geq 4 \right]$ the generalized Rayleigh distribution approaches the normal one with dispersion $D = 2\sigma^2$ and mathematical expectation U_0 . The probability-distribution density can, in this case, be expressed as follows:

$$p(u) = \frac{1}{\sqrt{2\pi\sigma^2}} e^{-\frac{1}{2\sigma^2}(u - u_0)^2} \quad (5)$$

The two-dimensional distribution of the signal amplitudes at the center and at the edge of the band (the correlation between them being equal to r_c .) will then be:

$$p(u_1, u_2) = \frac{1}{2\pi\sigma^2 \sqrt{1 - r_c^2}} \times$$

Card 3/ 8

24855 S/106/61/000/005/003/006
Transmission-bandwidth with single and scattered ... A055/A133

$$\frac{1}{2\sigma^2 (1 - r_c^2)} [(u_1 - u_0)^2 - 2r_c (u_1 - u_0) (u_2 - u_0) + (u_2 - u_0)^2],$$

(6)

and the function of the distribution of the quotient $\eta = \frac{\xi}{\zeta}$ will be:

$$p(x) = \left[\int_0^\infty - \int_0^0 \right] u p(xu, u) du. \quad (7)$$

Substituting (6) into (7) and integrating will give:

$$p(x) = \frac{\sqrt{1-r_c^2}}{\pi(x^2-2r_c x+1)} e^{-2s^2} + s \frac{1-r_c}{\sqrt{\pi}} \frac{x+1}{(x^2-2r_c x+1)^{3/2}} \times$$

$$\times e^{-\frac{s^2}{2} \frac{(x-1)^2}{x^2-2r_c x+1}} \Phi \left[s \sqrt{\frac{1-r_c}{1+r_c}} \frac{x+1}{\sqrt{x^2-2r_c x+1}} \right]. \quad (9)$$

Card 4/8

21.855 S/106/61/000/005/003/006
Transmission-bandwidth with single and scattered ... A055/A133

where

$$\Phi(z) = \frac{2}{\sqrt{2\pi}} \int_0^z e^{-\frac{t^2}{2}} dt \quad (10)$$

is the Kramp [Abstracter's note: or Cramp?] function. In order to determine the irregularities of the frequency characteristic, it is necessary to find the integrated distribution law

$$P\{x < K\} = \int_0^K p(x) dx \quad (11)$$

Stating that, the first term of the sum in (9) can be practically neglected and that

$$\Phi\left[s\sqrt{\frac{1-r_c}{1+r_c}} \frac{x+1}{\sqrt{x^2-2r_c x+1}}\right]$$

approaches 1 for $s \geq 2$, the author obtains (after substitution of variables and integration) his most important formula:

$$P(x < K) = \frac{1}{2} \left[\Phi\left(s\sqrt{2}\right) - \Phi\left(s\sqrt{2} \frac{1-K}{\sqrt{K^2-2r_c K+1}}\right) \right] \quad (13)$$

The correlation coefficient r_c appearing in this formula is related to the band by

Card 5/8

24855

S/106/61/000/005/003/006

Transmission-bandwidth with single and scattered ...

A055/A133

the approximate relation:

$$r_e = R(\Delta f) = \exp \left[-e^{-s} \left(\frac{\Delta f}{f_0} \right)^2 \right], \quad (14)$$

where $\Delta f_0 = \frac{c}{4d} \sqrt{\frac{2}{\alpha}}$ being the effective radius of the Earth, c the velocity of light, d the distance between transmitter and receiver, and α the angle of the antenna radiation pattern (half-power). Taking this into account, the author derives the following expression from (14):

$$\Delta f = \frac{c \rho}{d^2 \alpha} e^{-\frac{s}{2}} \sqrt{|\ln r_e|}. \quad (15)$$

Formulae (13) and (15) solve the problem of the transmission-band of a tropospheric radio-relay link in the presence of the regular component. Numerical calculations using formula (13) showed that the presence of a regular component (even if this component is small) considerably widens the transmission-band of tropospheric radio-relay links. Thus, for a 200 km-link (with $\alpha = 0.9^\circ$ and $\rho = 8,500$ km), the transmission-band at level 0.7 will be, during 90% of the time, superior to 670 kilocycles in the absence of the regular component ($s = 0$) and superior 12.3 megacycles for $s^2 = 4$. The transmission-band of a tropospheric radio-relay link can also be

Card 6/8

24855

S/106/61/000/005/003/006

A055/A133

Transmission-bandwidth with single and scattered ...

considerably improved if the reception of the scattered multipath signals is based upon the method of linear addition before the discriminator stage, with preliminary phase adjustments of the signals. Adding two or several independent signals reduces the irregularity of the random frequency characteristic of the path. Using the distribution function $P_{\Sigma}(u)$ for the sum of N independent random magnitudes (deduced by Levin in his already mentioned work), the author arrives at the following final formula, analogous to formula (13):

$$P\{x < X\} = \frac{1}{2} \left[\Phi \left(\sqrt{\frac{\pi N}{4-\pi}} \right) - \Phi \left(\sqrt{\frac{\pi N}{4-\pi}} \frac{1-X}{\sqrt{X^2 - 2RX + 1}} \right) \right], \quad (22)$$

where Φ is the Kramp (Cramp) function. For $N = 4$, formula (22) becomes:

$$P\{x < X\} = \frac{1}{2} - \frac{1}{2} \Phi \left[\frac{3.8(1-X)}{\sqrt{X^2 - 2RX + 1}} \right],$$

since $\Phi(3.8) = 0.99986$. Numerical calculations using formula (23) were⁽²³⁾ carried out by the author in order to compare four-fold reception to single reception at the same correlation coefficient R of signal amplitudes, i.e., with the same transmission-band. At $R = 0.9$, for instance, the irregularity proves worse than 0.7 during 25% of the time if $N = 1$, and during 1.6% of the time if $N = 4$. Other cal-

Card 7/8

24855

S/106/61/000/005/003/006

Transmission-bandwidth with single and scattered ...

A055/A133

culations showed that the troposphere transmission-band equal to 1 megacycle at level 0.7 (with $d = 300$ km and $\alpha = 0.9^\circ$) is impaired during 35% of the time if $N = 1$ and during only 7% of the time if $N = 4$. There are 3 figures and 7 references: 4 Soviet-bloc, 3 non-Soviet-bloc. The references to English-language publications read as follows: 1) Bolgiano. Wavelength dependence in transhorizon propagation. Proc. IRE, 1959, v. 47, No. 2. 2) Crawford. Studies in tropospheric propagation beyond-the-horizon. BSTJ., 1959, v. 38, No. 5.

SUBMITTED: November 5, 1960

Card 8/8

CHIZHENKO, I.M., kand.tekhn.nauk; RUDENKO, V.S., kand.tekhn.nauk;
NEZAIROVSKIY, A.Sh., inzh.

Inverse firing conditions in large power converters with
multiple rectifiers and a commutating device. Prom. energ.
16 no.8:36-40 Ag '61. (MIRA 14:9)
(Electric substations) (Electric current rectifiers)

NEMIROVSKIY, A.S.

Carrying capacity of a multiple-beam channel with diversity reception and automatic selection. Radiotekhnika 16 no.9: 34-38 S '61. (MIRA 14:9)

1. Deystvitel'nyy chlen Nauchno-tekhnicheskogo obshchestva radiotekhniki i elektrosvyazi im. A.S. Popova.
(Information theory)

L 10367-63

BDS/ERC-2/ERD-2/ERO-2--AFFTC/ASD/ESD-3--P1-4/Pn-4

ACCESSION NR: AF3000532

8/0106/63/000/005/0024/0026

67

AUTHOR: Nemirovskiy, A. S.

TITLE: Method for reducing cross noise in multipath communication channels transmitting an FM signal.

SOURCE: Elektrosvyaz', no. 5, 1963, 24-26

TOPIC TAGS: cross radio noise, multipath communication, sky-wave communication, beam-antenna position

ABSTRACT: A theoretical method is offered for reducing cross interference in sky-wave radio communication by changing the antennas position so that the axis of symmetry of the beam, not its half-power line, is tangent to the Earth's surface (Enclosure, Fig 2). A sample calculation shows that for a 350-km line, the method reduces the cross noise to one-seventh, while the transmission losses increase only by 2 db. Thus, without complicating the equipment, an essential reduction of cross noise can be attained at the expense of a slight increase in thermal noise. Orig. art. has: 10 equations and 3 figs.

Card

1/41

ACCESSION NR: AP4037402

S/0106/64/000/005/0075/0076

AUTHOR: Nemirovskiy, A. S.

TITLE: Experimental determination of the correlation of slow variations in thermal noise and crosstalk in tropospheric lines

SOURCE: Elektrosvyaz', no. 5, 1964, 75-76

TOPIC TAGS: radio, radio communication, tropospheric radio communication, tropospheric radio communication noise

ABSTRACT: In a properly designed radio-communication line, the thermal noise should be equal to that of the crosstalk. Hence, the relation between the fluctuation of both types of noise is important. This problem was studied in 1962 on an experimental tropospheric communication line; 39 one-hour recorded sessions were processed, and an average probability of correlation was found to be 0.7 with a mean square deviation of 0.17. It is recommended that in planning

Card 1/2

ACCESSION NR: AP4037402

tropospheric radio-relay lines, a high degree of correlation between the thermal and crosstalk be allowed for, i.e., their sum should be assumed to obey a normal-logarithmic law of probability distribution with the same dispersion and a mean value equal to the sum of the mean values of the components. Orig. art. has: 3 figures and 2 formulas.

ASSOCIATION: none

SUBMITTED: 23Nov63

ATD PRESS: 3072

ENCL: 00

SUB CODE: EC

NO REF SOV: 000

OTHER: 000

Card 2/2

ACCESSION NR: AP4042501

S/0106/64/000/007/0013/0016

AUTHOR: Gusevskiy, I.A.; Nemirovskiy, A. S.

TITLE: Experimental investigation of a transmission band in single and diversity reception of signals of long-distance tropospheric ultrashort-wave propagation

SOURCE: Elektrosvyaz', no. 7, 1964, 13-16

TOPIC TAGS: troposphere frequency characteristic, tropospheric propagation, diversity signal reception, wide transmission band

ABSTRACT: A study of the probability distribution of irregularities in the troposphere frequency characteristics was conducted during the reception of signals with a single receiver as well as during diversity reception with two receivers. The distance between the transmitter and receivers was 303 km, and the antenna beam width at half-power points was 1°. The FM transmitter was modulated with sawtooth voltages, and the output frequency varied between $f_{\text{carrier}} - 5 \text{ Mc}$ and $f_{\text{carrier}} + 5 \text{ Mc}$. During the diversity reception the receiver $i-f$ signals were combined and fed to three oscillographs. It was

Card 1/2

ACCESSION NR: AP4042501

found that the probability of the occurrence of irregularities in the frequency characteristics during the reception with a single receiver in the 1-Mc band was equal to that obtained during the diversity reception in the 3-Mc band. Also, the linear superposition of i-f signals during the diversity reception resulted in the widening of the transmission band along the propagation path. Orig. art. has: 4 figures and 3 formulas.

ASSOCIATION: none

SUBMITTED: 15Jan64

ATD PRESS: 3067

ENCL: 00

SUB CODE: EC

NO REF SOV: 003

OTHER: 001

Card 2/2

NEMIROVSKIY, A.S.

Noise suppression by a syllable compander. Elektrosviaz' 18 no.8:
65-70 Ag '64. (MIRA 17:8)

ARMAND, N.A.; VVEDENSKIY, B.A.; GUSYATINSKIY, I.A.; IGOSHEV, I.P.;
KAZAKOV, L.Ya.; KALININ, A.I.; KOLOSOV, M.A.; LEVSHIN, I.P.;
LOMAKIN, A.N.; NAZAROVA, L.G.; NEMIROVSKIY, A.S.; PROSIN,
A.V.; RYSKIN, E.Ya.; SOKOLOV, A.V.; TARASOV, V.A.; TRASHKOV,
P.S.; TIKHOMIROV, Yu.A.; TRCITSKIY, V.N.; FEDOROVA, L.V.;
CHERNYY, F.B.; SHABEL'NIKOV, A.V.; SHIREY, R.A.; SHIFRIN, Ya.S.;
SHUR, A.A.; YAKOVLEV, O.I.; ARENBERG, N.Ya., red.

[Long-distance tropospheric propagation of ultrashort radio
waves] Dal'nee troposfernoe rasprostranenie ul'trakrotkikh
radiovoln. Moskva, Sovetskoe radio, 1965. 414 p.
(MIRA 18:9)

GUSYATINSKIY, Igor' Aleksandrovich; RYZHKOV, Yevgeniy Vasil'yevich;
NEMIROVSKIY, Aleksandr Solomonovich; MARKOV, V.V.,
retsensent; LEVIN, G.A., retsensent [deceased]; BRODICH,
S.V., otv. red.; NOSOVA, M.N., red.

[radio relay communication lines] Radioreleiznye lini svia-
zi. Moskva, Sviaz', 1965. 542 p. (MIRA 19:1)

ACC NR: AM5027749

Monograph

UR/ 70

Armand, N. A.; Vvedenskiy, B. A.; Gulyatinskiy, I. A.; Igoshev, I. P.;
Kazakov, L. YA.; Kalinin, A. I.; Nazarova, L. G.; Nemirovskiy, A.
S.; Prosin, A. V.; Ryskin, E. YA.; Sokolov, A. V.; Tarasov, V. A.;
Tashkov, P. S.; Tikhomirov, YU. A.; Troitskiy, V. N.; Pedorova, L. V.;
Chernyy, P. B.; Shabel'nikov, A. V.; Shirey, R. A.; Shifrin, YA. S.;
Shur, A. A.; Yakovlev, O. I.; Kolosov, M. A.; Levshin, I. P.; Lomakin, A. M.

Upper tropospheric propagation of ultrashort radio waves (Dal'neye
troposfernoye rasprostraneniye ul'trakorotkikh radiovoln) Moscow,
Izd-vo "Sovetskoye radio", 1965. 414 p. illus., biblio. 4000
copies printed.

TOPIC TAGS: radio wave propagation, tropospheric radio wave, radio
communication, space communication, tropospheric scatter communicat-
ion, signal processing, signal distortion, field theory

PURPOSE AND COVERAGE: This monograph is intended for specialists
working in the field of radiowave propagation, designers of long-
distance radio communication systems, and teachers and students of
the advanced courses in schools of higher technical education. The
monograph contains, for the most part, heretofore unpublished
results of Soviet experimental and theoretical investigations in the
field of long-distance tropospheric ultrashortwave propagation.

Card 1/10

UDC: 621.37.24

ACC NR: AM5027749

Problems of investigating the troposphere by means of refractometers, the mean level of signals, meteorological conditions and topography, fluctuation of arrival angles and distortions of antenna-directivity patterns, losses in antenna gain, and quick and slow fading of signal levels are discussed. The statistical characteristics of the signals at diversity reception in time, space, frequency and angle as well as the distortion of signals in the communication systems are also investigated. The long-distance propagation theory is analyzed, and the engineering method of calculating field intensity at long-distance tropospheric propagation is given. At present, there is no theory of Long-Distance Tropospheric Propagation which can be applied effectively enough in practice. Thus, in the investigation of that propagation, considerable attention has to be paid to experiments. The special characteristics of geographical conditions of the territory involved should be taken into consideration during the analysis of experimental data and in their practical application because the conditions of propagation in arctic and tropical climates differ from those existing over seas and continents. A considerable part of the monograph deals with the investigations of long-distance tropospheric propagation carried out over dry land routes, 800 km long, in the central part of the USSR under the general supervision of B. A. Vvedenskiy and A. G. Arenberg (up to 1957). V. I. Siforov investigated problems con-

Card 2/10

ACC NR: AM5027749

nected with distortions and fluctuations of signals. References follow each chapter.

TABLE OF CONTENTS:

Foreword --

Ch. I. Radio Engineering Methods of Investigating the Troposphere Dielectric Constant -- 5

Bibliography -- 16

Ch. II. Results of Troposphere Dielectric Constant Measurements -- 17

1. Relationship between the mean value of the air refraction index and altitude. Standard radio-atmosphere -- 17

2. Fluctuations of the air refraction index -- 24

3. Some notions on the troposphere model -- 43

Bibliography -- 45

Ch. III. Average (mean) Signal Levels in Long Distance Tropospheric Propagation of Ultrashort Waves (L T P U S W) -- 48

Card 3/10

ACC NR:

AM5027749

1. Equipment and measuring methods for the mean signal level -- 48
2. Signal attenuation function in LTP USW -- 54
3. Relationship between mean signal level and the distance -- 57
4. Relationship between mean signal level and the wavelength -- 63
5. Relationship of mean signal level and the shadow angles of both transmitting and receiving antennas -- 65
6. Diurnal and seasonal variations of mean signal level -- 72

Bibliography -- 75

Ch. IV. Effect of Air Refraction Index at the Earth Surface on the Mean Field Level in LTP USW -- 77

1. Correlation of the mean field level with the air refraction index at the Earth Surface. -- 77
2. Possibility of predicting field intensity variations -- 81

Bibliography -- 86

Ch. V. Fluctuation of Radiowave Arrival Angles and Instantaneous Patterns of Antennas Directivities -- 88

1. Methods of measuring radiowave arrival angles and recording of instantaneous antenna directional patterns -- 89

Card 4/10

ACC. NO.

NM5027749

2. Fluctuation of radiowave arrival angles in horizontal and vertical planes -- 92
3. Instantaneous antenna directional patterns -- 92

Bibliography -- 102

Ch. VI. Losses in Antenna Gain of EMP USW -- 103

1. Determination and methods of measuring losses in antenna gain -- 103
2. Experimental data on losses in antenna gain -- 108
3. Theoretical investigations on losses in antenna gain -- 114

Bibliography -- 120

Ch. VII. Theories of Long Distance Tropospheric Propagation of USW -- 122

1. Introductory remarks -- 122

Bibliography -- 129

2. Theory of scattering radiowaves by tropospheric turbulent nonhomogeneities -- 130

Card 5/10

ACC NR:

AM5027749

Bibliography -- 150

3. Reflection of radiowaves from dielectric nonhomogeneities of definite dimensions -- 151

Bibliography -- 171

4. Reflections of radiowaves from laminated tropospheric nonhomogeneities of random character -- 172

Bibliography -- 179

Ch. VIII. Engineering Method of Design-Calculation of Field Intensity Attenuation -- 180

1. Basic rules of calculation method -- 181
2. Diffraction horizon (a distance, beginning of which, the value of the field intensity, calculated according to the diffraction formulas is smaller than the measured intensity) -- 182
3. Determination of field standard attenuation -- 182
4. Meteorological conditions correction -- 184
5. Local topography correction -- 185
6. Estimate of losses in antenna gain -- 185

Card 6/10

ACC NR: AM5027749

7. Estimate of fading -- 186

Bibliography -- 188

Ch. IX. Statistical Characteristics of the Envelope, Phase and Frequency of the Random Signal in LTP USW -- 189

1. Statistical characteristics of atmosphere dielectric constant signal components in LTP -- 189
2. Distribution laws for the envelopes and phase of various signal components -- 193
3. Distribution laws of sum-signal envelope --
4. Multi-dimensional distribution functions of instantaneous value of envelopes and phases of the spaced signals in minute intervals 207
5. Parameters of multi-dimensional amplitude and phase distribution functions of spaced signals -- 210
6. Statistical characteristics of instantaneous values of the envelopes of spaced signals in minute intervals -- 222
7. Statistical characteristics of instantaneous values of spaced signal phases in minute intervals -- 239
8. Statistical characteristics of instantaneous value of phase first derivatives of spaced signals in minute intervals -- 248

7/10

ACC NR: AM5027749

9. Statistical characteristics of instantaneous values of the first derivative of phase in minute intervals -- 257

Bibliography -- 260

Ch. X. Experimental Investigations of Rapid and Slow Fadings in LTP USW -- 262

1. Methods of measuring and processing experimental data -- 262
2. One-dimensional distribution functions of signal instantaneous values -- 264
3. One-dimensional distribution functions of signal averaged values -- 278
4. Period and frequency in rapid fluctuations of signal envelope -- 283

Bibliography -- 287

Ch. XI. Experimental Investigation of Signal Statistical Characteristics at Space, Frequency, Time and Angle Diversity Reception -- 288

1. Space-diversity reception -- 288
2. Frequency-diversity reception -- 295
3. Time-diversity reception -- 299
4. Frequency-time diversity reception -- 305
5. Angle-diversity reception -- 307

Card 8/10

ACC NR AM5027749

Bibliography -- 312

Ch. XII. Investigation of Amplitude-Frequency and Phase-Frequency
Signal Characteristics at LTP -- 314

1. Measuring and processing methods of experimental data -- 314
2. Amplitude-frequency characteristics -- 321
3. Phase-frequency characteristics of LTP channel -- 325
4. Frequency characteristics of signal group time delay -- 334

Bibliography -- 350

Ch. XIII. Signal Distortion in LTP USW -- 351

1. Theoretical investigation of distortions appearing in multi-channel FM LTP communication systems -- 352
2. Experimental investigation of distortion in LTP -- 384
3. Distortions appearing during TV transmission over tropospheric radio links -- 389

Bibliography -- 392

Appendix Automation of Signal Statistical Processing -- 394

1. Quantification of continuous signals and coding -- 395
2. Signal quantification instruments -- 397

Card 9/10

NEMIROVSKIY A Ya.

P 4

AUTHOR: Ginzburg, Z.I., Engineer

SOV/122-58-7-30/31

TITLE: Production Engineering and Technical Session on the Exchange of Experience in the Utilisation of Natural Gas in Industrial Furnaces of Engineering Plants (Proizvodstvenno-tekhnicheskaya sessiya po obmenu opytom ispol'zovaniya prirodnogo gaza v promyshlennyykh pechakh mashinostroitel'nykh zavodov)

PERIODICAL: Vestnik Mashinostroyeniya, 1958, Nr 7, pp 86-87 (USSR)

ABSTRACT: The session was called by the Khar'kov sovnarkhoz (Khar'kov Economic Council), the metal-working section of the nauchno-tekhnicheskoye obshchestvo mashinostroitel'noy promyshlennosti (Scientific and Technical Society for the Engineering Industry) and the Institut ispol'zovaniya gaza v kommunal'nom khozyaystve i promyshlennosti AN USSR (Institute for Gas Utilisation in Communal Services and Industry at the Ac.Sc. Ukrainian SSR). V.K. Tarasenko Engineer of the zavod transportnogo mashinostroyeniya (Transport Machinery Works) imeni Kalysheva reported on experience in the operation of forge-heating furnaces and open-hearth furnaces with natural gas. The use of flameless injection burners is permissible in forging shops and rough-heat treatment shops when heating forging blanks

Card1/9

807/22-8-7-30/31
Production Engineering and Technical Session on the Exchange of
Experience in the Utilisation of Natural Gas in Industrial Furnaces
of Engineering Plants

of medium cross-section not subject to rigid control of mechanical properties. The use of flame-type two-channel burners is acceptable in all shops, including heat-treatment furnaces for finish treatment and furnaces for the heating of components and blanks of arbitrary cross-section subject to rigid control of mechanical properties. Such burners ensure a greater stability of the furnace. Gas burners cannot be placed anywhere in the working space of the furnace. Their optimum position is 400-450 mm above the sole of the furnace or 200-250 mm above the surface of the charge. In heat-treatment furnaces, especially with multi-layer charging, rapid heating is achieved by placing the burners at the furnace sole level. In co-operation with the Gas Utilisation Institute of the Ukrainian Ac.Sc., the lecturer's works developed a successful method for the heating of large ingots. Injector burners did not ensure the required uniformity and rate of ingot heating. 22 hours were needed for an ingot of 13 tons (compared with 10 hours with oil). The residual oil atomisers, type RDB, with

Card2/9

SOV/122-58-7-30/31

Production Engineering and Technical Session on the Exchange of Experience in the Utilisation of Natural Gas in Industrial Furnaces of Engineering Plants

double atomisation, were used with changed nozzles. A toron type gas combustion was achieved which heated the ingots in 10 hours. The fuel cost per ton of output is reduced compared with oil. A typical value is 55 roubles compared with 80 in forge-heating furnaces. Forging and heat treatment shops have achieved automatic temperature control with the help of an electronic-hydraulic installation, designated RTEG-1. I.N. Kamp, Engineer, of the Institute of Gas Utilisation, reported on work at the imeni Mayshera Works to improve the combustion of natural gas in a 40-ton open-hearth furnace. The two-channel burner was replaced by a single-channel burner and the shape of the working space of the furnace was changed resulting in a significant improvement. The practice of working with furnaces fired by natural gas installed in the Khar'kovskiy traktorniy zavod (Khar'kov Tractor Works) was discussed by I.R. Bykov, Engineer. 9 heat-treatment furnaces and forge heating furnaces and 32 drying furnaces have been converted to a natural gas. Two-channel low-pressure burners of the Giprosel'mash design operating on a gas

Card3/9

DOV/122-58-7-30/31

Production Engineering and Technical Session on the Exchange of
Experience in the Utilisation of Natural Gas in Industrial Furnaces
of Engineering Plants

pressure of 250 mm water column and an air pressure of
500 mm water column were used. It was necessary to increase
the gas pressure to 500-700 mm water column. The furnaces
were modified from under-floor to side heating.
Nemirovskiy, A.Ya., Engineer, of the Motorostroitel'nyy
zavod (Engine Works) "Serp i Molot", reported on the
conversion to natural gas of forge-heating furnaces and
boilers. The former are equipped with injector burners of
5 sizes ranging from 6 to 18 m³/h capacity. In the drop-
hammer section, two-channel burners of 16-50 m³/h capacity
are used. The furnaces are equipped with screens to
induce air circulation. It has been shown by gas analysis
that, in using injector burners, the air excess coefficient
is lower than in using two-channel burners. The
coefficient amounts to 1.05-1.1. Increasing the loading
of the hearth by reducing its surface area made it possible
to reduce the specific fuel consumption and increase the
furnace output. The drying kiln, the furnace for heating

Card 4/9

SOV/122-58-7-30/31

Production Engineering and Technical Session on the Exchange of
Experience in the Utilisation of Natural Gas in Industrial Furnaces
of Engineering Plants

and firing of blocks and other units in the foundry have been converted to natural gas. Single-conduit, three-nozzle burners of 30-50 m³/h capacity are used. Single-conduit multi-nozzle burners have given good service in boilers. Kopytov, V.F., Corresponding Member of the Ac.Sc. Ukrainian SSR, lectured on new heating methods in forging shops. Several variants exist for using natural gas in non-oxidising metal-heating furnaces. The construction of such furnaces is associated with the production of fire-bricks and fire-resistant materials for high-temperature recuperators and regenerators. At present, the Gas Utilisation Institute is working on the solution of a reliable non-oxidising heating method for forging and stamping. A.Ye. Yerimov, Engineer, of the Institute of Gas Utilisation, reported on the conversion of industrial furnaces from producer to natural gas. The existing gas-burning equipment can be used by simply reducing the cross-sections for gas flow. Kovalenko, V.V. of the IIG AN USSR (Institute of Gas Utilisation) lectured on drying kilns with infra-red gas heating when working with

Card5/9

SOV/122-58-7-30/31

Production Engineering and Technical Session on the Exchange of Experience in the Utilisation of Natural Gas in Industrial Furnaces of Engineering Plants

natural gas. The heating conditions are controlled by the gas flow or by connecting rows of radiating panels. A study carried out to determine conditions of drying for UE-11 and UE-41 enamels or of UVL-1 and ML-21 lacquers on the bodies of sewing machines has established that good drying takes place over the whole surface. With a temperature of 400-450 °C at the radiating surface, satisfactory drying is accomplished in 4-6 minutes without discoloration. The use of the mixture of the combustion products of natural gas and air as a heat carrier has made it possible to simplify and cheapen significantly the design of the drying plant and to increase its efficiency. The fuel consumption has been reduced by a factor of 2.2. The duration of drying has remained the same as in drying with air heated to the same temperature. Kol'dinov, L.T., Engineer, of the Khar'kovskiy velozavod (Khar'kov Bicycle Works) delivered a paper on the possibilities of automation when using natural gas. Gas carburising in natural gas has been adopted in the Ts-60 furnace. The gas pressure is 150-250 mm water column. The duration of carburising to a

Card6/9

SCV/122-58-7-30/31

Production Engineering and Technical Session on the Exchange of Experience in the Utilisation of Natural Gas in Industrial Furnaces of Engineering Plants

depth of 1 mm is 4.5 hours. A tunnel furnace made of fireclay rings has been designed and built at the works. The furnace is heated with injector burners of medium pressure, and uses natural gas as a carburiser. In co-operation with the Gas Utilisation Institute, the design and construction of a high-speed heating furnace has been accomplished for the end faces of 32 mm dia rods, feeding a rod each 13-15 sec. An original design of a conveyor for transporting the rods from the furnace to the forging machine is being completed. The design, pursued by the lecturer, of a turbine burner of 30-40 m³/h capacity uses the energy of high-pressure gas to drive a fan which forces air for combustion from the atmosphere and ensures a torch-type gas-combustion process. Dolginova, M.Ye., Engineer, of the Bakinskiy sudoremontnyy zavod (Baku Ship Repair Yard) imeni Parizhskego Kommuny delivered a paper on the use of natural gas for the smelting of cast iron. The method developed and tested in practice, which dispenses with coke, consists of constructing alongside an ordinary cupola furnace a small reflecting furnace operating

Card 7/9

SOV/122-58-7-30/31

Production Engineering and Technical Session on the Exchange of
Experience in the Utilisation of Natural Gas in Industrial Furnaces
of Engineering Plants

with natural gas. The furnace has three burners supplied by one air manifold and one gas manifold which ensure the simultaneous control of all burners. The practical utilisation of gas-fired cast iron melting furnaces has shown that cast iron with a carbon content below 3% can be produced. The high temperatures achieved make it possible to introduce up to 15-20% of steel scrap into the charge and also to accomplish modification of the cast iron. It is stated that cast iron melted with gas has a low sulphur content and is distinguished by higher mechanical properties. Zamalin, P.S., Engineer, of the Khar'kovskiy elektromekhanicheskiy zavod (Khar'kov Electro-mechanical Works) reported on experience with the burning of natural gas in industrial furnaces. Ios. Mibok'yan, Engineer, of the Rostsel'mash spoke on the use of gas drying and the conversion of electric furnaces to natural gas.

Card 8/9

SOV/122-58-7-30/31

Production Engineering and Technical Session on the Exchange of
Experience in the Utilisation of Natural Gas in Industrial Furnaces
of Engineering Plants

Levitan, R.E., Engineer, of the Khar'kovskiy zavod
shveynykh mashin (Khar'kov Sewing Machine Works) reported
on workshop heating with natural gas using calorifiers.
There is 1 table.

Card 9/9

NEMIROVSKIY, A.Ya.

Burner for the heating of stamping dies. Prom.energ. 14 no.2:10-11
F '59. (MIRA 12:3)

(Burners)

NEMIROVSKIY, A.Ya.

Conversion of electric heat treating furnaces to natural gas.

Gaz.prom. 6 no.4:24-29 '61.

(MIRA 14:3)

(Electric furnaces) (Gas, Natural)

NEMIROVSKIY, A.Ya., inzh.

Mechanization of the unpacking and cleaning of parts. Mashino-
stroenie no.6:61-64 N-1) '62. (MIRA 16:2)

1. Khar'kovskiy zavod "Serp i molot".
(Materials—Handling)

NEMIROVSKIY, A.Ya.

Conversion of shaft cementation furnaces to the use of natural gas.
Gaz.prom. 7 no.1:32-35 '62. (MIRA 15:1)
(furnaces) (Gas, Natural)

NEMIROVSKIY A, Ya.

Using natural gas in the unpackaging of machine parts. Gaz. prom.
'7 no.5:42-45 '62. (MIRA 17:11)

S/094/62/000/012/001/001
E194/E435

AUTHOR: Nemirovskiy, A.Ya., Engineer

TITLE: A combined electrical and gas furnace

PERIODICAL: Promyshlennaya energetika, no.12, 1962, 13-15

TEXT: In the 'Serp i Molot' Works, Khar'kov, auxiliary gas burners were fitted to a resistance furnace, which requires particularly accurate temperature control, for the purpose of saving electricity. The gas burners are used to heat up the furnace (which does not operate continuously). The gas-electricity combination permits producing, when necessary, a neutral atmosphere. The furnace rating is 45 kW, the hearth area 0.78 m², the operating temperature 950°C, the gas consumption 6 to 8 m³/hour supplied at a pressure of 0.9 atm (gauge), the construction is described and illustrated with sketches. There is 1 figure. ✓

Card 1/1

NEMIROVSKIY, A.Ya.

Converting electric pusher-type furnaces to natural gas. Gaz.
prom. 8 no.2:13-21 '63. (MIRA 17:8)

NEMIROVSKIY, A.Ya., inzh.

Improvement of conveyor furnaces. Atom. energ. 19 no.5:
11-13 May '64. (MIRA 1964)

87322
S/111/60/000/002/002/002
B012/B054

6.6000 (3502, 1021, 1159)

AUTHORS: Nemirovskiy, B. M., Senior Engineer, and Kalugin, B. N.,
Senior Engineer

TITLE: Emergency Modulator of a Television Transmitter

PERIODICAL: Vestnik svyazi, 1960, No. 2 (239), pp. 29-30

TEXT: The emergency modulator for the standard TV transmitter, installed at the Minskiy teletsentr (Minsk Television Center) with a power of 5 kw at peak operation, was constructed in the form of a support with detachable blocks. This modulator, which is 2010 mm high, 760 mm long, and 960 mm deep, is half the size of the standard modulator. The emergency modulator is, like the working modulator, a three-stage broad-band amplifier with a correction in the low and high-frequency range. The blocks of the first, second, and third stage are, analogous to those of the working modulator, and are therefore exchangeable with the latter. Essential characteristics of the emergency modulator are a well-planned distribution of the blocks of the third stage and the selenium rectifier of the modulator which made it possible to pass over from forced to natural

Card 1/3

Emergency Modulator of a Television
Transmitter

87322
S/111/60/000/002/002/002
B012/E054

cooling. In contrast to the working modulator which receives the displacement voltage from the TV transmitter, the emergency modulator has its own 150 v bias rectifier with full-wave circuit which makes the feeding of the emergency modulator independent of the TV transmitter. In contrast to the standard modulator with two large outside chokes, the emergency modulator is equipped with small chokes which are located in the support. In the course of an experiment, the separating transformer was omitted, while the transformer core was earthed by the non-earthed bias rectifier. It appeared that the frequency characteristic of the TV transmitter with modulator remained unchanged. Omission of the separating transformer, however, led to a further reduction of the support dimensions. In tuning, it proved to be difficult to tune the output cable of the emergency modulator to the fifth TV transmitter stage to be modulated. This disadvantage was eliminated by means of an RC circuit chosen by way of experiment and shown in Fig. 4. The frequency characteristic of the modulator was considerably improved in various places by shortening the output cable as much as possible and by careful earthing of the cable shield. A fatigue test of the emergency modulator described proved its absolute utility in operation.

Card 2/3

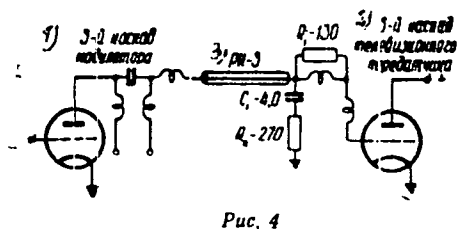
87322

Emergency Modulator of a Television
Transmitter

S/111/60/000/002/002/002
B012/B054

Legend to Fig. 4: 1) third modulator stage, 2) fifth TV transmitter stage,
3) cable.
There are 5 figures.

ASSOCIATION: Minskiy teletsentr (Minsk Television Center)



Card 3/3

SIPOVICH, S.Yu.; NEMIROVSKIY, B.M.

Complete automation of the benzol-scrubber section of a recovery
plant. Koks i khim. no.12:45-56 '60. (MIRA 13:12)

1. Dnepropetrovskiy koksokhimicheskiy zavod.
(Dnepropetrovsk--Coke industry--By-products)

BALALAYEV, G.A., inzh., red.; NEMIROVSKIY, B.S., inzh., red.;
BOGATYKH, Ya.D., inzh., red.; BOROZNIN, A.A., inzh., red.;
STRASHNYKH, V.P., red.izd-va; NAUMOVA, G.D., tekhn. red.

[Construction specifications and regulations] Stroitel'nye
normy i pravila. Pt.3. Sec.V. ch.10.[Heat insulation;
regulations for production and acceptance of work] Teplo-
izoliatsiya; pravila proizvodstva i priemki rabot (SNiP III-V.
10-62). 1963. 14 p. (MIRA 16:12)

1. Russia (1923- U.S.S.R.) Gosudarstvennyy komitet po delam
stroitel'stva. 2. Gosudarstvennyy komitet po delam stroitel'-
stva SSSR (for Balalayev). Mezhdudomstvennaya komissiya po
peresmotru Stroitel'nykh norm i pravil (for Nemirovskiy,
Bogatykh).

(Insulation (Heat')—Standards)

GUSAKOV, S.F., inzh, red.; NEMIROVSKIY, B.S., kand. tekhn. nauk,
red.; DUBROVSKIY, A.I., inzh., red.

[Construction specifications and regulations] Stroitel'-
nye normy i pravila. Moskva, Stroiizdat. Pt.3. Sec.D. ch.2.
[Bridges and pipes; regulations for the work organization,
execution of work, and acceptance of completed work] Mosty
i truby; pravila organizatsii i proizvodstva rabot, priemka
v ekspluatatsiiu (SNIP III-D.2-62) 1964. 86 p.

(MIRA 17:7)

1. Russia (1923- U.S.S.R.) Gosudarstvennyy komitet po de-
lam stroitel'stva. 2. Gostroy SSSR (for Gusakov). 3. Mezhd-
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S/122/60/000/003/011/015
A161/A130

AUTHOR: Nemirovskiy, I.A., Engineer

TITLE: Machining accuracy of small stepped shafts on lathes fitted with hydraulic copying tool slides

PERIODICAL: Vestnik mashinostroyeniya, no. 3, 1966, 61 - 66

TEXT: Machining inaccuracies introduced by hydraulic copying tool slides are discussed and calculated. An UP-240 (UP-240) tool slide is used for the analysis of dimension errors caused by displacement of the slide valve from the zero point. Displacement of the workpiece profile in radial and axial direction from the template profile due to the summary slide valve displacement is calculated. A graph (Fig. 4) shows step height variations on a cylindrical stepped shaft having been turned on a 1A62 lathe with an UP-240 tool slide in laboratory line horizontal axis indicates the step height in mm (H), and the vertical the frequency of height occurrence (Q)]. The initial shaft blank diameter was 90 mm; the step height on the tracer 0.29 mm; the cutting depth 0.1 mm; feed 0.1 and 0.2 mm/revolution. The effect of diversion-influencing factors was carefully eliminated (wear of cutter, strain in the resilient mechanical system, geometrical machine

Card 1/3

Machining accuracy ...

S/122/50/000/003/011/015
A161/A130

inaccuracy, allowance variations, etc.). Conclusions: 1) Knowing the static characteristic of a copying tool slide it is possible to calculate the systematical machining errors on stepped-diameter profiles introduced by the hydraulic tool slide. The errors may be compensated by corresponding correction of the tracer dimensions and profile. 2) The axial error increases abruptly in turning tapered surfaces with less than 8° cone angle (i.e., $\alpha < 40^\circ$), and the workpiece profile shifts considerably. It is, therefore, not advisable to use a hydraulic tool slide for such surfaces. 3) It is advisable to make the first step of the tracer 8-10 mm longer than the first step of the workpiece to reduce the errors caused by uneven motion of the hydraulic tool slide of the tracer. The added tracer portion can be made 0.5-1 mm lower than the first step. It is desirable that machine tool plants producing hydraulic tool slides indicate the static characteristics of the tool slides, or provide diagrams that would enable industry technologists to correct the tracers. There are 4 figures, 1 table and 7 references: 6 Soviet-bloc and 1 non-Soviet-bloc.

Card 2/3